МИНОБРНАУКИ РОССИИ

ГОУ ВПО «УРАЛЬСКИЙ ГОСУДАРСТВЕННЫЙ ЛЕСОТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ»

Кафедра иностранных языков

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В ПОИСКАХ НАУЧНЫХ ОТКРЫТИЙ

Часть II

Методические указания
к изучению теоретического курса,
к практическим занятиям
для студентов очной и заочной форм обучения.
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Уважаемые студенты!

Данные методические указания имеют профессионально ориентированную направленность и нацелены на подготовку к Интернет-тестированию после изучения базового курса английского языка на ИЭФ. Согласно европейскому стандарту они выводят Вас на уровень владения английским языком *B2*. Поскольку Интернет-тестирование имеет своей основной целью проконтролировать, в первую очередь, Вашу компетентность в различных типах «чтения» (изучающее, ознакомительное, поисковое) и «письма» (главным образом, делового), то в соответствии с этим и построена структура методических указаний. В них Вы получите исчерпывающую информацию по всем дидактическим единицам, связанным с «чтением»:

1) ознакомительным (определение истинности утверждения, ложности утверждения);

2) поисковым (определение наличия или отсутствия в тексте запрашиваемой информации);

3) изучающим (элементы анализа информации, аннотирования, сопоставления, а также выделения главных компонентов содержания текста).

В отношении «письма» (как одного из видов речевой деятельности) Вы ознакомитесь с оформлением делового письма, электронного сообщения, письма-уведомления, письма-запроса, резюме, письма-заявления, служебной записки, повестки дня.

Мы будем рады принять все Ваши замечания в устной или в письменной форме. Это поможет нам в дальнейшей работе по совершенствованию содержания обучения на втором курсе ИЭФ.

Units 1 − 6 даны в Методических указаниях, часть I.

Unit 7. Nutrition

I. Before you read

1. Discuss these questions with your partner:

- What food do you enjoy with your family?
- Is there a dish that is a specialty of the region you live in?
- Are you on the diet? What is your diet?

2. Vocabulary

Additive	[ˊædətiv]	a chemical substance that is added to food to make it last longer or look or taste better
Antioxidant	[ˌænti ˊɒksid(ə)nt]	1. a substance that prevents oxygen from combining with other substances and damaging them. Antioxidants are used in industry for making substances such as rubber and plastic stronger, and they are often added to processed foods to make them stay fresh for longer. 2. a substance in the body that prevents cells and tissue from being damaged by harmful substances. Some vitamins are antioxidants.
Balanced diet	[ˌbələnst ˊdaiət]	a diet that contains proteins, carbohydrates, fats, vitamins and minerals, in the correct amounts.
Bleaching agent	[ˊbli:tʃiŋ,eiʤ(ə)nt]	an artificial substance in food that makes it whiter and more attractive.
Carbohydrate	[ˌka:bə ˊhaidreit]	an organic compound found in foods such as sugar, bread, and potatoes. Carbohydrates consists of oxygen, hydrogen and carbon, and they supply the body with heat and energy.
Deficiency	[di ˊfiʃənsi]	a lack of smth that your body needs.
Emulsifier	[i ˊmʌlsi ˌfaiə]	a substance added to a food or drink to stop liquid and solid parts from separating.

Essential	[i´senʃ (ə)l]	completely necessary.
Fat	[fæt]	a [soft white] substance in food such as oil, butter that people need in order to grow and be healthy.
Fibre	[´faibə]	the parts of fruit, vegetables, and grains. They help food to pass through your body.
Malnutrition	[ˌmælnju´triʃ(ə)n]	a medical condition in which you are very weak or ill because you do not have enough to eat, or you do eat enough of the right foods.
Nutrient	[´nju:triənt]	a substance that all organisms need in order to live, grow, and be healthy. In animals, the nutrients are foods that contain energy, vitamins, and minerals. In plants, they are carbon dioxide, water, and mineral salts.
Obesity	[əu´bi:səti]	a condition in which someone is extremely fat in a way that is dangerous for their health.
Protein	[´prəuti:n]	a substance in food such as milk, meat and eggs that people need in order to grow and be healthy.
Stabiliser	[´steibilaizə]	a substance added to some prepared foods to stop the taste or appearance from changing.
Tartrazine	[´ta:trəzi:n]	a substance added to some prepared foods to colour them.
Vitamin	[´vitəmin]	natural substances found in food that are necessary to keep your body healthy.

3. Complete the sentences. Choose the words from the box below

fat, deficiencies, protein, essential, fibre, water, vitamins

1. A lot of diseases are caused by mineral … in the body.
2. Water is … for the survival of an organism.
3. It is healthy to reduce the amount of … in your diet.
4. Wholegrain cereals are high in … .
5. The sea villagers' main source of … is fish from the river.

6. … are an important part of a healthy diet.
7. Wash your hand thoroughly with soap and … .

4. Match the words with their definitions

1. food colouring	a) A lot of the taste of foods can be lost during food processing, so chemicals are used to restore it.
2. tartrazine	b) Food changers during processing, so this is added so they look more attractive, or to make foods appear to contain something that they do not.
3. flavourings	c) These are added to stop oil and water in the same mixture from separating out.
4. monosodium glutamate (MSG)	d) These artificially whiten products which make them more attractive to many people.
5. emulsifiers	e) These maintain the physical state and preserve the texture and colour of the processed food.
6. antioxidants	f) These prevent the growth of microorganisms that would cause the decay (spoilage) of food or food poisoning.
7. bleaching agents	g) These prevent the spoilage of foods on exposure to air. They also prevent deterioration of flavour and colour that has been added to the processed food.
8. preservatives	h) This is a bright yellow coloring often used in sweets and drinks and can cause hyperactivity in young children.
9. stabilisers	i) This is added to savory foods to improve the flavour, particularly south-east Asian foods.

II. Reading I

1. Read the text. Fill in the gaps with the words from the box bellow

carbohydrates, deficiency, energy, more quickly, peas, plant cell walls, provisions, significant, starch, sugar

CARBOHYDRATES

Sugar and starch are used mainly to supply the body with energy. Foods that contain sugar, such as oranges and milk, are found in the Fruit and Milk Groups. Foods that contain starch, such as pasta and potatoes, are found in the Bread and Vegetable Groups. Sugar and starch are carbohydrates. During digestion, the body breaks down starch into a simple sugar called glucose that can be absorbed by cells and used for energy. All carbohydrates provide quick energy.

Carbohydrates include sugar, starch and cellulose. Cellulose is the material which forms (1)… . It is very tough and difficult to digest, so most of our (2)… come from food containing (3)… and (4)… .

Carbohydrates are mainly found in plant foods, such as ground (5)… (yams, potatoes), fruit, vegetables, (6)… and beans. Some animal products, such as milk, yoghurt and cheese, also contain (7)… amounts of carbohydrates.

Carbohydrates provide us with (8)… . We can get energy from protein and fats, but carbohydrates are important when we are very active as they give us energy (9)… . A (10)… in carbohydrates can result in a lack of energy.

Reading II

2. Read the text and say what role fat and protein play

FAT & PROTEIN

Like carbohydrates, fat provides the body with energy. But fat contains more than twice as many food calories per unit of mass as carbohydrates. Unlike most carbohydrates, fats can be stored in the body. They can be used when the body needs energy. Foods that are rich in fats include margarine, butter, salad oils, olives, nuts and seeds, cheeses, and many meats. These foods are found in the Milk and Meat Groups, as well as in Fats, Oils, and Sweets.

Proteins are the third group of nutrients that can provide energy. Their primary use, however, is not to supply the body with energy. Proteins make up much of the structure of cells. They are needed for the growth and repair of cells. Milk, meats, fish, eggs, beans, and cheeses are good sources of protein. These foods are found in the Milk and Meat Groups. Foods in the Bread and Vegetable Groups also contain protein, but in smaller amounts.

3. Put the phrases in the correct order to make sentence

NUTRITION

- for growth, repair and reproduction. we eat, to provide energy needed, Nutrition is the study of, from the food, how the body uses the nutrients
- carbohydrates, proteins fat, vitamins, and minerals. these nutrients from, We get
- our diet. The foods, make up, every day, we eat and drink
- we need to eat, To stay healthy, nutrients. the different kinds of, a good balance of

4. Find the opposites to the words below

- good –
- healthy –
- active –
- include –
- repair –
- small –
- rich –
- fat –
- quick –

5. Read the following statements and decide if they are true or false or they don't have that information.

	True	False	No information
1. Fat doesn't provide the body with energy.			
2. Fats can be stored in the body.			
3. Milk, butter nuts, meat are not rich in fats.			
4. Proteins make up much of the structure of cells.			
5. Bread and Vegetables contain protein in big amounts.			
6. Sportsmen need a lot of protein.			

III. Speaking & Writing

1. Discuss these questions:

1. What do you know about food preservation?
2. What methods of food preservation do we use?
3. What methods of food preservation are used in industry?
4. What methods of food preservation are used in your family?
5. What food do you preserve?
6. Why do we heat food?
7. Why do we add sugar in food?
8. Why do we salt food?
9. Does your family use such methods as refrigeration, drying and pickling? Why?

2. Memo (Готовимся к Интернет-экзамену)

Message (memo) – a written piece of information passed from *one person to another.*

Here is ***a memo***. Match ***1 – 4 with*** the names of the parts of ***memo***

(1)_____: All Staff
From : R&D Director
(2)_____: the Chairman's visit

The Chairman of our corporation, (3) _____, will visit our company next Friday, 15 November. He is coming to visit our new production centre. He will arrive at 11:30 a.m. and you are kindly requested to be at the welcome reception for him at the Conference Hall.

(4) _____

- Subject
- To
- Mr Schnabel
- U.T.

Unit 8. Three other Nutrients

I. Before you read

1. Discuss these questions with your partner

- What nutrients does our body need?
- What role does water play for our body?
- How much minerals and vitamins does our body need a day?

2. Vocabulary

Mineral	[ˊmin(ə)rəl]	an inorganic chemical in some foods that is important for good health, for example calcium.
Disease	[diˊziːz]	an illness that affects people or animals, especially one that is caused by infection.
Yolk(s)	[ˊjəuk]	the middle part of an egg that is yellow.
Calcium	[ˊkælsiəm]	a silver-white chemical element that is very important for the normal growth and health of most living things, especially for bones and teeth. Symbol: Ca; at. no.: 20
Nerve(s)	[nɜːv]	one of the fibres in your body that carry messages between your brain and the rest of your body, communicating pain, pressure, feelings of heat and cold, etc.
Rickets	[ˊrikits]	a disease that mainly affects children in which the bones become soft and bend. It is caused by a lack of vitamin D in food or by a lack of sunlight on the skin.
Osteomalacia	[ˌɒstiəuməˊleiʃə]	a condition, especially of women during pregnancy, characterized by a softening of the bones with subsequent flexibility, deformity, weakness and pain, caused by deficiency of calcium, phosphorous and vitamin D.
Cramp(s)	[kræmp]	a sudden painful contraction of a muscle, often caused by tiredness or strain.

Haemoglobin	[ˌhi:məˊgləubin]	the substance in blood that contains oxygen.
Anaemia	[əˊni:miə]	a medical condition in which there are too few red blood cells in the blood.
Maguesium	[mægˊni:ziəm]	a chemical element that is a light grey metal. Symbol: Mg; at. no.: 12
Iodine	[ˊaiəˌdi:n]	a poisonous dark non-metal element. A solution in alcohol is put on cuts in the skin in order to prevent infection. Symbol: I; at. no.: 53
Iron	[ˊaiən]	iron that exists in small quantities in some foods and in the body. Iron is found in foods such as red meat, eggs, nuts, and cereals and is important in order to make haemoglobin. Lack of iron in the body causes anaemia. Symbol: Fe; at. no.: 26
Zinc	[ziŋk]	a chemical element that is a blue-white metal. Symbol: Zn; at. no.: 30
Well-being	[ˊwelˊbi:iŋ]	the satisfactory state that someone or something should be in, that involves such as being happy, healthy, and safe, and having enough money.
Yeast	[ji:st]	a white substance that is used in making bread and beer.
Weakness	[ˊwi:knis]	the state or condition of being weak.
Tiredness	[ˊtaiədni(ə)s]	the feeling of being tired.

3. Complete the sentences using the words from the box

minerals, water, nutrients, energy, vitamins, essential

1. Water helps the body get … from the fat, carbohydrate, and protein you eat.
2. There are more than a dozen …, including calcium, iodine, iron and zinc.
3.Your body doesn't need large quantities of minerals and … -less than a teaspoon a day.
4. Carbohydrate, fat, and protein are not the only … the body needs.
5. Like a river carrying boats, … transports nutrients to every cell of your body.
6. Minerals and vitamins are … to human growth and well-being.

4. Read the sentences below. Use the words given in capitals at the end of each line to form a word that fits the space in the same line

1. The range of minerals is vital for the … of the body.	DEVELOP
2. The body requires calcium for … bones and teeth.	STRENGTH
3. Zinc helps the body … .	GROWTH
4. Vitamins play a … in helping the body work.	PARTICLE
5. Good sources of vitamin A … carrots, egg yolks, sweet potatoes, and milk.	INCLUSION

II. Reading I

1. Read the text and title the paragraphs

THREE OTHER NUTRIENTS

1. When you feel thirsty, what is your body telling you? You should drink eight glasses of water a day to stay healthy.

2. The range of minerals is vital for the development and support of the body. For example, the body requires calcium for strong bones and teeth. Good sources of calcium are milk, cheese, spinach, and dried figs. Zinc helps the body grow; it comes mostly from seafood, meats, and yeast.

3. Each vitamin–A, the B vitamins (eight in all), C, D, E, and K-plays a part in helping the body work and in preventing certain diseases. For example, vitamin A helps keep eyes bright and clear. Good sources of vitamin A include carrots, egg yolks, sweet potatoes, and milk.

2. Read the following statements and decide if they are true or false or they don't have that information

	True	False	No information
1. You should drink ten glasses of water a day.			
2. The range of minerals is vital for the development and support of the body.			
3. The body needs zinc for strong bones and teeth.			
4. Good sources of calcium are milk, cheese and spinach.			
5. Zinc helps the body grow.			
6. Each vitamin plays a part in the helping the body work and in preventing certain diseases.			
7. Sweet potatoes and milk don't contain vitamin A.			
8. Vitamins are very important for small children.			

Reading II

3. Read the text. Make notes on the minerals mentioned, including their sources in food, their use in the body and the results of deficiency

MINERALS

Calcium is found in dairy foods, for example, cheese and milk. It is also found in green vegetables, dried peas and beans. It is used in the body for the formation and hardening of bones and teeth. It also promotes the healthy functioning of the nerves and promotes the normal clotting of blood. In children, a deficiency can lead to rickets, where the bones of the legs bend as they cannot support the legs. In adults, the condition is called Osteomalacia. It can also cause brittle bones and this can increase the risk of fracture.

The main source of sodium is in table salt, and sodium chloride in foods. In the body it helps the contraction of the muscles and the transmission of the nerve impulses. A lack of salt in the diet can lead to painful muscle cramps and poor transmission of nerve impulses.

Iron comes from dark green leafy vegetables and pumpkin. Other sources are liver, kidney, fish and red meat. It is important in hemoglobin which carries oxygen in the blood. A diet deficient in iron can lead to anemia which causes weakness and tiredness as less oxygen reaches cells for respiration and release of energy.

Magnesium is found mainly in green leafy vegetables, nuts, dried peas and beans. Magnesium is essential for effective nerve and muscle functioning and is important in energy production. A lack of magnesium can lead to tiredness and weakness.

4. Find the opposites to the words below

- weakness ----------wet
- strong----------rich
- deficiency----------weak
- dry----------strength
- poor----------surplus

Mineral	**Sources in food**	**How it is used in the body**	**Result of deficiency**
Calcium	cheese, milk, …	for the formation of bones, …	

III. Speaking & Writing

1. Do you agree or disagree?

- Calcium is found only in dairy foods.

- Calcium is used in the body for the formation teeth.
- Lack of calcium can lead to Osteomalacia.
- In the body sodium helps the contraction of the muscles and the transmission of nerve impulses.
- A lack of salt in the diet can lead to anaemia.
- Iron is important in haemoglobin which carries oxygen in the blood.
- Iron is found in cheese, milk, sugar and salt.
- A diet deficient in iron can lead to painful muscle cramps.
- Magnesium is found mainly in green leafy vegetables, nuts, dried peas and beans.
- A lack of magnesium can be lead to tiredness and weakness.

2. Discuss these questions:

- Have you ever noticed how much of our life is centered on food?
- Do we use food expressions to describe someone's physical characteristics?

(e.g. He is as skinny as a string bean. etc.) What does it mean?

- Do we use food expressions to describe someone's personality?

(e.g. She is as sweet as sugar) Explain the meaning of this saying.

- Do we use food expressions to describe a situation or activity?the

(e.g. That crossword puzzle is a piece of a cake) What does it mean?

- What does the sharing of food demonstrate?

(acceptance, friendship, family, love) Do you agree?

- What does the expression "to break bread" mean?

(Shows respect, a sign of friendship and acceptance)

3. Memo (Готовимся к Интернет-экзамену)

Here is ***a memo. Match 1 – 4*** with the names of the parts ***of memo.***

(1)_____: Business partners with training interests
(2)_____: Patrick Baldoz, Director Tri-County WDC
Date : 28 July 2010
(3)_____: Local business workforce survey

At the request of several local manufacturing companies, the Tri-County Workforce Council completed a Workforce Skills Needs Survey. We are pleased to provide you with an electronic copy of this survey which contains information from 105 local businesses.

(4) _____

- Director
- To
- From
- Subject

Unit 9. Biological Significance of Vitamins

I. Before you read

1. Discuss these questions with your partner

- What vitamins do you know?
- What role do different vitamins play in our life?
- What do you think about genetically-modified food?

2. Vocabulary. Read the words and find out their definition in dictionary

Exception		
Metabolism		
Membrane		
Integrity		
Synthesis		
Enzyme(s)		
Tissue		
Requirement(s)		
Factor		
Uniform		
Drug(s)		
Chemicals		
Crop(s)		
Consequence(s)		
Cancer		

3. Match these words with their definitions

1. Cancer	a) one of the things that influence whether an event happens or the way that it happens
2. Crop	b) a substance used in chemistry or produced by a process involving chemistry
3. Chemical	c) a serious illness caused by a group of cells in the body increasing in an uncontrolled way
4. Factor	d) a substance that doctors put into someone's body to treat a disease or medical problem
5. Drug(s)	e) a plant grown for food, usually on a farm

4. Read the sentences below. Use the words given in capitals at the end of each line to form a word that fits the space in the same line

1) Supermarkets want to sell … food.	CHEAPNESS
2) Some … use chemicals on their crops.	FARM
3) Genetically-modified crops sound like a great …	IDEAL
4) They produce lots of strong … .	PLANTFUL
5) The vitamins … reactions that occur in metabolism.	REGULATIONS
6) With the … of vitamin C all of the water soluble vitamins have a catalytic function.	EXCEPT

5. Find the opposites below

health ----------destroy
advantages----------expensive
strong----------disagree
produce----------buy
sell----------disease
cheap----------decrease
increase----------week
agree----------disadvantages

II. Reading I

1. Read the text. Find out advantages and disadvantages of GM (genetically–modified) food. Complete the table below

GM CROPS: SOLUTION OR PROBLEM?

Supermarkets want to sell cheap food – and fruit and vegetables that look big and bright and "perfect". To grow these, some farmers use more and chemicals on their crops. When you eat an apple, do you know what chemicals are on the skin? What is the effect of these on our health?

GM (Genetically-modified) crops sound like a great idea. They don't get diseases like normal crops. They produce lots of strong plants. They are cheap. Isn't this a great way to feed the world, especially poor countries?

The problem is, nobody knows the consequences! Will these crops affect human health? What happens if something goes wrong? Can GM crops encourage diseases like cancer? Nobody knows for certain! So people are nervous.

Are GM crops a step too far? Will they affect our environment – and us? We don't know!

Advantages	**Disadvantages**
1. Don't get diseases	……
……	……
……	……
……	……

Reading II

2. Read the text and find out the sentences with the words given in the vocabulary. Translate them

BIOLOGICAL SIGNIFICANCE OF VITAMINS

The vitamins regulate reactions that occur in metabolism, in contrast to other dietary components known as macronutrients, which are the compounds utilized in the reactions regulated by the vitamins. Absence of a vitamin blocks one or more specific metabolic reactions in a cell and eventually may disrupt the metabolic balance within a cell and in the entire plant or animal as well.

With the exception of vitamin C, all of the water-soluble vitamins have a catalytic function; i.e., they act as coenzymes of enzymes that function in energy transfer or in the metabolism of fats, carbohydrates, and proteins. Some of the fat-soluble vitamins form part of the structure of biological membranes or assist in maintaining the integrity of membranes. Some fat-soluble vitamins also may function at the genetic level by controlling the synthesis of certain enzymes. Unlike the water-soluble ones, fat-soluble vitamins are necessary for specific functions in highly differentiated and specialized tissues; therefore, their distribution in nature tends to be more selective than that of the water-soluble vitamins.

Vitamins, which are found in all living organisms either because they are synthesized in the organism or are acquired from the environment, are not distributed equally throughout nature. Some are absent from certain tissues or species; for example, beta-carotene (provitamin A) is synthesized in plant tissues but not in animal tissues. On the other hand, vitamins A and D_3 occur only in animal tissues.

The vitamins required by most organisms are fairly well established. Vitamin requirements vary according to species and the amount of a vitamin required by a specific organism is difficult to determine because of the numerous factors involved (e.g., genetic variation; presence of specific disease states; therapeutic use of certain drugs; food additives; environmental stresses). So there is no uniform agreement concerning the vitamin requirements for man.

3. Read the following statements and decide if they are true or false or they don't have that information

	True	False	No information
1. The vitamins regulate reactions that occur in metabolism.			
2. Absence of a vitamin doesn't block any metabolic reactions in a cell.			
3. With the exception of vitamin C, all of the water-soluble vitamins have a catalytic function.			
4. All the fat-soluble vitamins form part of the structure of biological membranes.			
5. All vitamins are equally distributed throughout nature.			
6. Beta-caratene (provitamin A) is always synthesised in plant tissues.			
7. Vitamins A and D_3 never occur in animal tissues.			
8. Vitamin requirements vary according to species.			
9. There is no uniform agreement concerning the vitamin requirements for man.			

III. Speaking &Writing

1. Discuss these problems with your partner

- The food we eat is genetically modified.

What do you know about it?

- In the US, millions of farms grow genetically modified maize which is pure poison for insects. Do you think that maize is poisonous for people?
- Genetic engineers put duck genes into chicken to make the chickens bigger.Genetic engineers consider that this can save the lives of starving people. Do you agree?/disagree?

• Our governments (of many counties) do little to control genetic engineering. Why? Should they punish those who use genetic engineering in plants and animals?

2. Memo (Готовимся к Интернет-экзамену)

Complete ***the memo*** by putting the information ***a-d in the correct place***

To_____**:** All Staff
(1)_____: K&L Director
(2)_____**:** the Chairman's visit

The Chairman of our corporation, (3)_____, will visit our company next Monday, 26 September. He is coming to visit our new production centre. He will arrive at 10.30 a.m. and you are kindly requested to be at the welcome reception for him at the Conference Hall.
(4) _____

a) Subject
b) From
c) Mr Burton
d) A.M.

Unit 10. Dmitri Mendeleev

I. Before you read

1. Discuss these questions with your partner

- Can you name any famous chemists?
- What are they famous for?
- Where do chemists work?
- What do chemists produce?

2. Vocabulary

Boron	[bɔ:rɒn]	a chemical nonmetallic element. Symbol: B; at. no.: 5
Chlorine	[ˊklɔ:ri:n]	a gas with a strong smell, often used for killing bacteria in water. Symbol: Cl; at. no.: 17
Platinum	[ˊplætinəm]	a silver-grey metal used in industry and for making expensive jewellery. Symbol: Pt; at. no.: 78
Phosphorus	[ˊfɒsfərəs]	a chemical element, especially a form called while phosphorus that shark to burn by itself when air touches it. Symbol: P; at. no.: 15
Ruthenium	[ruˊӨeniəm]	a chemical rare metallic element, belonging to the platinum group of metals. Symbol: Ru; at. no.: 44
Francium	[ˊfrænsiəm]	a chemical radioactive element. Symbol: Fr; at. no. 87
Germanium	[ʤɜ:ˊmæniəm]	a scarce, metallic element, normally tetravalent, used chiefly in transistors. Symbol: Ge; at. no.: 32
Copper	[ˊkɒpə]	red-brown metal used especially for making wire or pipes. Symbol: Cu; at. no.: 29
Polonium	[pəˊləuniəm]	a chemical radioactive element discovered by Pierre and Marie Curie in 1898. Symbol: Po; at. no.: 84
Titanium	[taiˊteiniəm]	a chemical element, a strong light and expensive white metal. Symbol: Ti; at. no.: 22
Lithium	[ˊliӨiəm]	a chemical soft silver-white metallic element. Symbol: Li; at. no.: 3
Sodium	[ˊsəudiəm]	a chemical metallic element that oxidizes rapidly in moist air; occurring in nature only in the combined state. Symbol: Na; at. no.: 11

3. Match the words to make phrases

1) chemical	a) colour
2) fair-haired	b) sources
3) silvery	c) scientists
4) Greek	d) elements
5) acid	e) time
6) popular	f) people
7) ancient	g) word
8) famous	h) producer

4. Read the sentences below. Use the words given in capitals at the end of each line to form a word that fits the space in the same line

1. The origin of the names of … elements is very interesting indeed.	CHEMISTRY
2. Platinum received its name from the … "platina".	SPAIN
3. Places are very … sources for the names of the elements.	POPULATION
4. … has also been a popular source for the names of elements.	MYTH
5. Iridium was named after Iris, the Greek … of rainbows.	GOD

5. Find the opposites below

interesting----------cold
dark----------smokeless
north----------limited
heat----------exclude
low----------light
smoking----------boring
include----------south
endless----------high

II. Reading I

1. Read the text and find out the words, given in the vocabulary. Translate the sentences

THE ORIGIN OF THE NAMES OF CHEMICAL ELEMENTS

The origin of the names of chemical elements is very interesting indeed. The elements were named after people, places, myths, colours, chemical properties and functions. Let's take a look at some examples.

Chlorine was named from the Greek "chloros" meaning "pale green", the colour of the element. You may have noticed that when fair-haired people spend

too much time in swimming pools, their hair may turn green – this is because of the chlorine in the water. Platinum received its name from the Spanish "platina" for silver because of its silvery colour.

Oxygen was derived from the Greek word for acid – oxy – and the word for forming – genes. Thus we get "oxygen", which was named by Lavoisier who believed that oxygen was an acid producer. Phosphorus means "bringing light" in Greek, and it was thus named because white phosphorus glows in the dark.

Places are very popular sources for the names of the elements. Ruthenium, francium, germanium and polonium were named after Russia, France, Germany and Poland respectively. Copper, which has been known since ancient times, comes from the Latin "cuprum" for Cyprus, the island where the Romans first obtained copper. Amazingly, a village in Sweden has had four elements named after it. The village of Ytterby gave its name to the elements yttrium, terbium, erbium, and ytterbium because they were all discovered in the mineral ytterbite, which had originally been found in the village.

Mythology has also been a popular source for the names of elements. Iridium was named after Iris, the Greek goddess of rainbows, because of the variety of colours in the element. Titanium was named after the Greek Titans – the mythological first sons of the Earth. Gold received its name from the Sanskrit word "jval", which means "to shine". Its chemical symbol – Au – is from the Latin aurum from Aurora, the Roman goddess of the dawn. Thor, the Norse god of thunder, gave his name to thorium.

Famous scientists who have been honoured in this way include Albert Einstein, Enrico Fermi, Dmitri Mendeleev, Alfred Nobel, and Neils Bohr.

2. Read the text again and choose the correct answer

1. Chlorine comes from a word meaning:
   a) silver;
   b) fair;
   c) green.
2. An element that can be seen in the dark is:
   a) platinum;
   b) phosphorus;
   c) oxygen.
3. Four elements were named after a village in:
   a) Sweden;
   b) Russia;
   c) France.
4. Iridium received its name from:
   a) mythology;
   b) a range of colours;
   c) a rainbow.

5. The name for gold and its chemical symbol:
   a) are from two different languages;
   b) are both taken from mythology;
   c) mean the same thing.

Reading II

3. Read the text and answer the questions

DMITRI MENDELEEV

Dmitri Ivanovich Mendeleev was born in Tobolsk, in Siberia, on 7th February, 1834. As a child he showed a great interest in Mathematics and Physics and was a talented student. Despite many more problems, Mendeleev earned his degrees and eventually, in 1863, was appointed Professor of Chemistry at the Technological Institute and the University of St Petersburg.

Probably his greatest scientific achievement was the discovery of the periodic law and the development of the periodic table of elements. He left gaps in his table for undiscovered elements and predicted the properties of the elements that would fit these gaps. His predictions were confirmed when, during his lifetime, three predicted elements; gallium, germanium and scandium, which he had named eka-aluminium, eka-silicon and eka-boron respectively, were discovered. These discoveries gave him great respect among members of the scientific community.

However, Mendeleev made other important contributions to science. He was involved in many areas including hydrodynamics, agricultural chemistry, mineral recovery, meteorology and chemical technology. One particular contribution involved solutions. He spent a lot of time studying how the nature of solutions could be determined, adding greatly to our understanding in that field. In addition, he was involved in physical chemistry, looking at the expansion of liquids because of heat. He spent time in Paris with Henri Victor Regnault studying the densities of gases and came up with a formula to explain how gases are uniform when expanding; in other studies he defined the absolute boiling point of a substance. His studies of gases at high and low pressures moreover, allowed him to develop an accurate barometer and while working for the Russian navy, he came up with pyrocollodion, a smokeless powder based on nitrocellulose. The list of his achievements is endless!

He died on 20th January, 1907, from pneumonia.

4. Answer the questions in your own words

1. What position did Mendeleev achieve at the University of St. Petersburg?
2. Why did Mendeleev leave gaps in the periodic table of elements?
3. How were Mendeleev's predictions proven correct?

4. What contribution did Mendeleev make in the area of solutions?
5. What did Mendeleev's formula concerning gases explain?

5. Outstanding chemists. Fill in the table

	Name	His/her discoveries/achievements
1	D. Mendeleev	…
2	Julius Meyer	…
3	…	…
4		

6. Complete the sentences below with words from the box

solution, appoint, expand, density, resulted, uniform

1. They are going to … a new professor in the Chemistry department.
2. The experiment proved that the gases had a … reaction, that is the same reaction.
3. The … of a substance is how thick and compact it is.
4. If metal is heated you will see it … .
5. It was a … made up of water and salt.
6. The experiment in the lab … in a huge explosion.

III. Speaking and Writing

1. Do you agree or disagree?

- Mendeleev knew about electrons.
- The periodic table arranged by Mendeleev was based on atomic weight.
- Electrons are located in shells around the nucleus of an atom.
- Valence electrons determine the physical properties of an element.
- Lithium and sodium have two valence electrons.
- Lithium and boron have two electron shells.
- Dmitri Mendeleev, Julius Meyer, Lavoisier are famous chemists.
- Modern periodic tables use atomic weight.
- Sometimes we can find 10 electrons in the second shell.
- The chemical make-up of an element depends on the outer shell.

2. Memo (Готовимся к Интернет-экзамену)

Complete the memo by putting the information a – d in the correct place.

(1)_____**:** Alan Bilton
From : Sue Mullins
(2)_____**:** Seminar for the new staff
(3)_____**:** 20 August

About the seminar you're organising for the new staff next month – will you need any equipment set up? I'll do a short introduction to the subject but I only need an OHP.

Can you fill in the request form for everything we'll need and send it to Shane Bell in the Technical department?

Thanks.

(4) _____

a) Date
b) Subject
c) Sue
d) To.

Unit 11. Atoms, elements and compounds

I. Before you read

1. Discuss these questions with your partner

- In chemistry and physics, what is an atom?
- What is smaller than an atom?
- What happens if you split an atom?
- Which chemical elements have you heard of?

2. Vocabulary

Atom	[ˊætəm]	the smallest unit of all matter that has all the chemical properties of a particular element. An atom consists of a nucleus that is made of protons, which are positive, and neutrons, which are neutral.
Particle	[ˊpa:tik(ə)l]	1. an extremely small piece of matter, for example an atom or a molecule. 2. a subatomic particle that is part of an atom, for example an electron, proton, or neutron.
Compound	[ˊkɒmpaund]	a chemical substance that consists of two or more elements that together form a molecule. Each different compound has a fixed ratio of elements, for example the water compound (H_2O) always consists of two hydrogen atoms and one oxygen atom.
Element	[ˊeliмənt]	a substance that consists of only one type of atom.
Helium	[ˊhi:liəm]	a gas that is lighter than air and is an element. It has the lowest boiling point of any substance. Chemical symbol: He. At.no.:2
Metal	[ˊmet(ə)l]	a hard, usually shiny element that is a good conductor of heat and electricity. Metals are used to make things such as tools, machines, pans, etc. Lead, iron, and gold are all types of metal. Mercury is the only metal that is liquid at room temperature.
Nitrogen	[ˊnaitrəʤ(ə)n]	an element that is a gas with no colour or smell. It makes up about 78% of the Earth's atmosphere. Chemical symbol: N. At.no.:7

3. Match these words with the correct definition

1) atom	a) a chemical substance that consists of two or more elements that together from a molecule.
2) particle	b) a substance that consists of only one type of atom.
3) compoun	c) the smallest unit of all matter that has all the chemical properties of a particular element.
4) element	d) One of the three main forms that matter takes. It has no fixed shape or volume and its molecules move to fill the space available. Molecules move faster than the molecules in liquids and solids.
5) gas	A gas that is lighter than air and is an element. It has the lowest
e)	boiling point of any substance. Chemical symbol: He.
6) solid	One of the three forms of matter that has a fixed volume but a
7) liquid	f) changing shape.
	g) Hard, usually shiny element that is good conductor of heat
8) helium	and electricity.
	h) An element that is gas with no colour or smell. It makes up
9) metal	about 78% of the Earth's atmosphere. Chemical symbol: N.
	i) An extremely small piece of matter, for example an atom or a
10) nitrogen	molecule.
	j) One of the three main forms of matter that does not change in shape or volume.

4. Read the text and fill in the gaps with the words from the box below

atoms, carbon monoxide, chemical formula, compounds, formula H_2O, hydrogen and oxygen, molecule, particles, sodium chloride, solid compound, symbol O, two oxygen atoms

Water molecules contain two different kinds of atom: (1) _____. Molecules of the poisonous gas (2) _____ contain one carbon atom combined with one oxygen atom. And molecules of carbon dioxide, which plants use in photosynthesis, contain one carbon atom combined with (3) _____. Substances that are made of two or more different kinds of atoms are called (4) _____. A (5) _____ is a shorthand way of showing which elements are in a compound. It also tells you how many atoms of each element are present in one (6) _____ of the compound. For example, water has the (7) _____. This tells you that each molecule of water contains two atoms of hydrogen (symbol H) and one atom of oxygen (8) (_____). In other words, the hydrogen and oxygen are in the ratio 2:1. (9) _____ - common salt has the formula NaCl. Sodium chloride is a (10) _____ with sodium and chloride (11) _____. There are no separate molecules, but the formula tells you that there are equal numbers of sodium and chlorine (12) _____.

II. Reading I

1. Complete the text by choosing the correct word. There is one word too many

COMMON ELEMENTS

aurum, capital, carbon, einsteinium, first, Greek, metals, non-metals, solids, symbol

Common elements can be classified into two main groups: (1) _____ and non-metals. (The first conduct electricity, and most (2) _____ do not). The elements can also be classified according to whether they are (3) _____, liquids or gases at room temperature (20^{o}C). Each element is represented by a (4) _____. This is a shorthand way of writing the name of the element. Sometimes the symbol is the (5) _____ letter of the English name of the element: for example, carbon, C. However, some elements have the same first letter: for example, (6) _____ and calcium. In these cases a second letter is used: calcium, Ca. Note that the first letter is a (7) _____, but the second letter is not. In some cases the symbol comes from a (8) _____ or Latin name. For example, the symbol for gold is Au. This comes from the Latin word (9) _____, which means 'shining dawn'. Some elements are named after famous people or places: for example, (10) _____ and francium.

2 .Read the text again and say if the following sentences are true or false or they don't have that information

	True	False	No information
1. Common elements can be classified into some three main groups.			
2. The first group of common elements doesn't conduct electricity.			
3. The elements can also be classified according to whether they are solids, liquids or gases at room temperature (20^{o}).			
4. Each element is represented by number.			
5. Sometimes the symbol is the first letter of the English name of the elements.			
6. In some cases the symbol comes from a German or French name.			
7. Some elements are named after famous people, for example einsteinium.			

Reading II

3. Read the text. Guess the meaning of the underlined words

DNA

The basis of life is a compound called DNA, which determines what you are like. It contains only the elements carbon, hydrogen, oxygen, nitrogen and phosphorus. DNA is very complex and the various atoms can be combined in millions of different ways. What makes you different from everybody else is the way in which the atoms in the DNA in your body are put together. All matter can be divided into living and non-living things and cells are the building blocks for living things. Cells and all non-living things are made of elements and compounds, which in turn are made of atoms and molecules. The salt in your body is the same as the salt on the kitchen table. The calcium carbonate in an eggshell and in your bones is the same as the calcium carbonate in limestone. Living things contain very complex compounds and life is associated with these complex compounds. Scientists have been able to work out the structures of living substances and some day they may be able to create life itself.

4. Restore the sentences

1. Have known, 1869. DNA. Sientists, since; exists, that

_____

2. DNA, 1953. The secret, England, finally, Two, revealed, of, from, researchers, in_____

3. Names; James Watson; are; and; Francis Crick. Their

_____

4. Made up; DNA; Sugar; in the form; was; of a chain. Of; They; phosphates; that; discovered; and

_____

5. Structure; together; four; The whole; by; compounds. Was bound

_____

6. Nucleotides; different; four; base. Each; had; a; organic; these; of

_____

7. Discovery; heredity; the process; better; the key; Their; a much; understanding; the; was; to; of; of_____

5. Find the word or phrase in each group

a) that does not fit

1) elements	hydrogen, alkali, carbon, helium
2) atom	electron, X-ray, neutron, proton
3) DNA	nucleus, strand, interpreter, filter
4) compounds	fixed, ratio of elements, substance, conductor, molecule

b) Now write 4 sentences using one word from each *category*

6. Read texts (Ex. 3, 4) again. Agree or disagree

1. The basis of life is a compound called DNA.
2. Scientists have known that DNA exists since 1769.
3. DNA was made up of sugar and phosphates.
4. DNA is very simple, because it contains only four nucleotides.
5. Each of these four nucleotides had the same organic base.
6. What makes you different from everybody else is the way in which the atoms in the DNA in your body are put together.

III. Speaking & Writing

1. Discuss these questions with your partner

- What practical uses did these discoveries have (atoms, elements, DNA)
- Look at chemical equations below (ex.2)
- Are they familiar to you?
- Have you ever carried out reactions to get these results?

2. Match the beginnings and endings of the sentences

a) When you mix iron and sulfur and heat the mixture	1) made, exact quantities of the different elements react.
b) The iron and sulfur are the reactants	2) iron (Fe) + sulfur (S) → iron sulfide (FeS)
c) The iron sulfide is the product	3) reaction, energy may be needed or energy may be released.
d) The equation for the reaction is:	4) a chemical reaction occurs.
e) The product and reactant in a reaction can be solids,	5) liquids or gases.
f) Water molecules always contain two atoms	6) bonded together than in other molecules.
g) When water decomposes, two molecules of hydrogen are formed	7)– the substances you start with.
h)When a compound is	8) of hydrogen bonded to every atom of oxygen.
i) The atoms in some molecules are more tightly	9) of the reaction.
j) As a result, when molecules are rearranged during a chemical	10) for every molecule of oxygen.

What characteristics do you have in common with people in your family?

3. Memo (Готовимся к Интернет-экзамену)

a) Complete the memo by putting the information a-d in the correct place

(1)_____**:** Maria Jarvis
From: Philip Benn

(2)_____**:** US trip
(3)_____**:** 20 July

Thanks for all your help last Friday. I was in the office on Saturday afternoon so everything is ready now …
Let me know if this is OK.
(4)_____

a**)** Philip
b**)** Date
c**)** Subject
d**)** To

в) Complete the memo by putting the information a-d in the correct place

To: (1)_____, Meeting Planner
(2): Mark Wilson, Catering Manager
Date: February 3, 20…
(3): Catering for CellFirst lunch

I have attached three menu choices for the March 16
Lunch for the CellFirst group. I asked the client on (4)_____if they wouldprefer a buffet lunch or served lunch. They haven't gotten back to me. Could you follow up?
N.W.

a) From
b) Feb. 1
c) Jan turner
d) subject

Unit 12. Composition of Matter

I. Before you read

1. Discuss these questions with your partner

How old is solar system?
How many planets are there in solar system?
Have you ever seen meteorites?

2. Vocabulary

Asteroid	[ˊæstəˌrɔid]	a mass of rock like a very small planet that goes around the sun, especially between mars and jupiter
carbon	[ˊka:bən]	
dust	[dʌst]	very small pieces of dirt that cover surfaces inside buildings like a powder
fission	[ˊfi ʃn]	1. the process of dividing an atom in order to create energy 2. the progress in which a cell divides into two or more parts
inert	[iˊnɜ:t]	not moving
lightning	[ˊlaitniŋ]	the bright flashes of light that you see in the sky during a storm
mass	[mæs]	
matter	[ˊmætə]	a particular type of substance
meteorite	[ˊmi:tiəˌrait]	a piece of rock that has fallen from space and landed on the ground
molecule	[ˊmɔliˌkju:l]	a very small group of atoms that from a particular substance
nebula	[ˊnebjulə]	a very large cloud of dust and gases that exists in outer space
neutron	[ˊnju:trən]	a part of an atom that has no electrical charge
plasma	[ˊplæzmə]	a substance similar to a gas that has almost no electric charge
potential	[pəˊtenʃl]	the possibility to develop or achieve something in the future
repel	[riˊpel]	if one thing repels another, an electrical or magnetic force pushes them away from each other
space	[speis]	the whole of the universe outside the earth's atmosphere
sperm	[spɜ:m]	a cell from a man

3. Match the words to make phrases

1) solar	a) molecules
2) planet	b) space
3) biological	c) egg
4) outer	d) system
5) volcanic	e) life
6) small	f) temperature
7) essential	g) eruptions
8) unicellular	i) element

4. Read the text. Fill in the gaps with the words from the box below

magnetic, nucleus, atom, positive, negative, electrons, neutrons, protons,

We know that an atom is made from (1)… and neutrons in a nucleus, and electrons spinning around this (2)… .

The protons have a (3)… electric charge and the electrons have a (4)… electric charge.

The (5)… have no electric charge.

As the (6)… spin around the nucleus, they produce small currents. These currents create a (7)… field around the electrons and the atom. This magnetic field makes the (8)… behave like a small magnet.

II. Reading I

1. Read the text. Translate the sentences with underlined words

FROM INERT MATTER TO INTELLIGENT LIFE

Our solar system is 4,500 million years old. In a solar system, the sun and the planets form at the same time. They form from a cloud of gases called nebula. A nebula rotates in space and the force of gravity pulls material to its centre. The nebula contracts and its centre gets hot. This hot centre becomes a star.

4,500 million years A.C.: the planet temperature is very high. There are many volcanoes but there is no biological life. Meteorites fall from outer space and volcanic eruptions prepare the Earth crust. Gases from the volcanoes form the initial atmosphere. The temperature goes down; oxygen and hydrogen join and form the first lakes and oceans. Scientists believe that life begins in these waters.

The first waters contain many kinds of small molecules that change their composition. Radiant energy from the sun and electric energy from lightning

recombine the small molecules into complex molecules. These complex molecules contain carbon, an essential element for life. Time passes and the first macromolecules of DNA appear. These macromolecules self-reproduce and join others to make up cells, the basic units of life. This theory explains that there is potential for life in inert matter. In humans, inert elements produce the sperm and the ovule. The sperm and the ovule form a unicellular egg (one cell) and from this cell, around sixty billion cells (60^{12}) come to life. The combination of inert parts to form a living whole shows the basic dynamics of life.

2. Complete the following sentences using words from the text

1. A star and a group of planets form … .
2. The … and the planets form at the same time.
3. A theory explains that there is potential for life in … matter.
4. A … egg is a combination of a sperm and an ovule.
5. Another way to say deoxyribonucleic acid is … .

3. Read the article again and put the following events in chronological order

a) The first macromolecules of DNA appear.
b) The gases condense and form particles of dust.
c) The nebula contracts.
d) Gases from the volcanoes form the initial atmosphere.
e) Gravity pulls material to the centre of the nebula.
f) The dust forms the asteroids and the planets.

4. Find the opposites below

separate----------natural
positive----------go down
artificial----------huge
go up----------combine
tiny----------outside
inside----------negative

Reading II

5. Read the text. Match paragraphs (1-6) with the topics (a-g). There is one extra topic

a) The stars are plasma.
b) Vibration produces changes in the states of matter.
c) Matter is a condensed form of energy.
d) Plasma can be natural or artificial.

e) A neutron is plasma.
f) The composition of an atom.
g) The vibration of energy.

COMPOSITION OF MATTER

1. Matter is any thing that has mass and occupies space. It is found in three different states: solid, liquid and gaseous. Matter, as Albert Einstein explained in his Theory of Relativity, can also be described as a condensed form of energy. In Einstein's own words: "Mass and energy are two different aspects of the same thing".

We can see this in nuclear fission. The energy condenses to form a nucleus. When we bombard the nucleus with a neutron, the nucleus separates and releases some of the energy in the form of heat.

2. An atom, a basic unit of matter, is a packet of energy with electric charges. Except for hydrogen, which has no neutrons, atoms are composed of a nucleus with neutrons and protons and a cloud with electrons orbiting the nucleus. The protons have a positive (+) charge. The electrons have a negative (-) charge. The neutrons have no charge. Opposite charges attract and like charges repel.

3. The energy contained in atoms and molecules makes them vibrate and this vibration produces heat. Matter expands with heat. In an iceberg (solid matter), for example, the molecules absorb radiant energy from the sun and vibrate even more. Their temperature increases, they expand and form water (liquid matter). The molecules in the water vibrate until they evaporate and go up in the air (gaseous matter). When the temperature decreases, their vibration slows down and they condense into drops that fall as rain. Water is a liquid composed of gases: oxygen and hydrogen.

4. In a gas atom like hydrogen, when the vibration increases the heat makes the atom expand more and lose its electron. The hydrogen atom becomes two separate charged particles: proton (+) and electron (-). Each of these particles is called plasma – positive plasma and negative plasma.

5. Plasma is not only produced by heat but also by particles bombarding the atoms. We can find plasma produced by heat in the sun, and plasma produced by particles bombarding the atoms in the ionosphere. We can also find artificial plasma during electric welding and inside fluorescent.

6. Interstellar space, the stars, and most of the universe is plasma. Our planet is a tiny mass vibrating in a sea of plasma.

III. Speaking and Writing

1. Do you agree or disagree?

Our solar system is 4,500 million years old.
The sun formed before the planets.

Our solar system formed from a cloud of gases.
The outer part of the nebula is not so hot.
Life on our planet could begin from the dust of a dying star.
4,500 million years ago the planet temperature wasn't very high.

2. Model letter (General Format)

Thesaurus

***Letter* is** a piece of paper that you write a message on and send to someone.
Message – a piece of written information that you send to someone.

(3) salutation (Dear) + addressee's name (4) body of the letter (5) closing (6) signature (writer's name)	(1) writer's city/zip code writer's country (2) month/day/year (Am. E) day/month/ year (Br. E)

This model sets out (1) the writer's address, (2) the date (3) the salutation to the addressee, (4) the body of the letter, (5) the closing word or phrase, and (6) the writer's signature.

****Note***

Readers in English usually expect to find these parts of a letter arranged in this way; they may be confused if the format is changed.

3. Read a congratulation letter. Find out the parts of the letter

	(1) 25 First Avenue West Norfolk, VA 66666 (2) September 15, 2010
(3) Dear Dr Harrison, Congratulations on the completion of your doctoral degree. May I wish you every success in your new career. (4) Sincerely, (5) Edmund J.Hill	

1----------
2----------
3----------
4----------
5----------

Keys

Unit 7. Nutrition

Ex.3: 1-deficiencies; 2-essential; 3-fat; 4-fibre; 5-protein; 6-vitamins; 7-water;
Ex.4: 1-b; 2-h; 3-a; 4-i; 5-c; 6-g; 7-d; 8-f; 9-e;
Ex.1: 1-plant cell walls; 2-carbo hydrates; 3-sugar; 4-staren; 5-provisions; 6-peas; 7-significant; 8-energy; 9-more quickly; 10-deficiency;
Ex. 3:
Message.

Unit 8. Three Other Nutrients

I. **Ex.3**: 1-energy; 2-minerals; 3-minerals; 4-nutrients; 5-water; 6-essential;
Ex.4: 1-development; 2-strong; 3-grow; 4-part; 5-include;
II. **Ex 2**: 1-F; 2-T; 3-No; 4-T; 5-T; 6-T; 7-F;
III. Вид документа (letter of complaint)

Unit 9. Biological Significance of Vitamins

Ex.3: 1-c; 2-e; 3-b; 4-a; 5-d;
Ex.4: 1-cheap; 2-farmers; 3-idea; 4-plants; 5-regulate; 6-exception;

I. Ex.3: 1-T; 2-F; 3-T; 4-F; 5-F; 6-T; 7-F; 8-T;9-T;
II. III. Informal letter

Unit 10. Dmitri Mendeleev

I. **Ex.4:** 1-chemical; 2-Spanish; 3-popular; 4-mythology; 5-goddess;
II. **Ex.2**: 1-c; 2-b; 3-a; 4-a; 5-a;
Ex. 4: 1-appoint; 2-uniform; 3-density; 4-expand; 5-solution; 6-resulted;
III. Envelope

Unit 11. Atoms, elements and compounds

Ex.3: 1-c; 2-i; 3-a; 4-b; 5-d; 6-j; 7-f; 8-e; 9-g; 10-h;
Ex.4: 1-hydrogen and oxygen; 2-carbon monoxide; 3-two oxygen atoms; 4-compounds; 5-chemical formula; 6-molecule; 7-formula H_2O; 8-symbol O; 9-solid compound; 11-particles; 12-atoms;
Ex.1: 1-metals; 2-non-metals; 3-solids; 4-symbol; 5-first; 6-carbon; 7-capital; 8-Greek; 9-aurum; 10-einsteinium;
Ex.2: 1-F; 2-F; 3-T; 4-No; 5-T; 6-F; 7-T;
Ex.4: 1. Scientist have known that DNA exists since 1869;
2. Two researchers from England finally revealed the secret of DNA in 1953.
3. Their names are James Watson and Francis Crick.

4. They discovered that DNA was made form of a chain.
5. The whole structure was round together by four compounds.
6. Each of these four nucleotides had a different organic base.
7. Their discovery was the key to a mush better understanding of the process of heredity.

Unit 12. Composition of Matter

Ex.4: 1-negative; 2-nucleus; 3-neutrons; 4-protons; 5-atom; 6-magnetic; 7-positive; 8-electrons;

Ex.2: 1-solar system; 2-sun; 3-inert; 4-unicellular; 5-DNA;

Ex.3: 1-e; 2-c; 3-b; 4-f; 5-d; 6-a;

Ex.4: 1-c; 2-f; 3-g; 4-b; 5-d; 6-a; e-ex bin;

III. Envelope.

Vocabulary

A a		
additive	[ˊædətiv]	добавка, примесь.
anaemia $_{n}$ мед.	[əˊni:miə]	анемия, малокровие
atom $_{n}$	[ˊætəm]	атом
B b		
benefit $_{n}$	[ˊbenəfit]	1)польза, выгода; 2) пособие по болезни; 3)страховое пособие
bleaching powder	[ˊbli:tʃiŋ ˊpaudə]	белильная или хлорная известь
bonus $_{n}$	[ˊbəunəs]	премия
boron $_{n}$	[ˊbɔ:rɒn]	бор
C c		
calcium $_{n}$ хим.	[ˊkælsiəm]	кальций
cancer $_{n}$ мед.	[ˊkænsə]	рак
carbonate $_{n}$ хим.	[ˊka:bəneit]	соль угольной кислоты; карбонат; черный алмаз
chemical $_{n}$	[ˊkemikəl]	химические препараты
compound $_{n}$	[ˊkɒmpaund]	состав, соединение
consequence $_{n}$	[ˊkɒnsikwəns]	последствие
copper $_{n}$ хим.	[ˊkɒpə]	медь
cramp $_{n}$	[kræmp]	1) судорога, спазм. 2) тех. зажим, скоба
crop $_{n}$	[krɒp]	урожай; с/х культура
D d		
deficiency $_{n}$	[diˊfiʃənsi]	отсутствие, нехватка, дефицит
disease $_{n}$ мед.	[diˊzi:z]	1) болезнь (мед.); 2) неисправность (тех.)
drug $_{n}$ мед.	[drʌg]	лекарство, медикаменты
dust $_{n}$	[dʌst]	1) пыль; 2) пыльца (бот.)
E e		
emulsifier $_{n}$	[iˌmʌlsiˊfaiə]	эмульсификатор
enzyme $_{n}$	[ˊenzaim]	энзим, фермент

essential adj	[i´senʃəl]	необходимый, существенный
exception n	[ik´sepʃən]	исключение, возражение
excess n	[ik´ses]	избыток, излишек, превышение
F f		
facility n	[fə´siliti]	1) средства удобства; 2) возможности, льготы
fat n	[fæt]	жиры
fibre n	[ˏfaibə]	волокно, фибра, нить; древесное волокно
fission n	[fiʃən]	1)расщепление (физ.), 2) размножение путем деления клетки (биол.)
francium n хим.	[´frænsiəm]	франций
H h		
habitat n	[´hæbitət]	среда обитания
hemoglobin n физиол.	[ˏhi:mə´gləubin]	гемоглобин
helium n хим.	[´hi:liəm]	гелий
I i		
inert adj	[i´nɜ:t]	инертный, неактивный, нейтральный
integrity n	[in´tegriti]	целостность, нетронутость
iodine n хим.	[´aiəˏdi:n]	йод
M m		
magnesium n хим.	[mæg´ni:ziəm]	магний
malnutrition n	[ˏmælnju´triʃ(ə)n]	недоедание; неправильное питание
mass n	[´mæs]	масса груза, множество
matter n	[´mætə]	1) вещество; 2) материал (филос.)
membrane n	[´membrein]	мембрана, диафрагма
metabolism n	[mə´tæbəˏlizem]	метаболизм; обмен веществ

meteorite n	[´mi:tiərait]	метеорит

molecule $_{n}$	[ˊmɒlikju:l]	молекула
N n		
nebula $_{n}$	[ˊnebjulə]	1) туманность (астр.) 2) помутнение роговой оболочки (мед.)
nerve $_{n}$ мед.	[ˊnɜ:v]	нерв
neutron $_{n}$ физ.	[ˊnju:trən]	нейтрон
P p		
polonium $_{n}$ хим.	[pəˊləuniəm]	полоний
phosphorus $_{n}$ хим.	[ˊfɒsfərəs]	фосфор
profit $_{n}$	[ˊprɒfit]	польза, выгода
Q q		
qualification $_{n}$	[ˌkwɒlifiˊkeiʃən]	квалификация, подготовленность
qualify $_{v}$	[ˊkwɒlifai]	приобретать какую-либо специальность
questionnaire $_{n}$	[ˊkwestʃəˊneə]	вопросник, анкета
R r		
repel $_{v}$	[riˊpel]	отвергать, отклонять
rickets $_{n}$ мед.	[ˊrikits]	рахит
residue $_{n}$ хим.	[ˊrezidju:]	осадок
ruthenium $_{n}$ хим.	[ru:ˊθi:niəm]	рутений
S s		
sodium $_{n}$ хим.	[ˊsəudiəm]	натрий
species $_{n}$ биол.	[ˊspi:ʃi:z]	род, порода, вид
sufficient	[səˊfiʃənt]	достаточный
synthesis $_{n}$	[ˊsinθəsis]	синтез
T t		
titanium $_{n}$	[taiˊteiniəm]	титан
U u		
uniform $_{n}$	[ˊju:nifɔ:m]	униформа

W w

wilderness $_{n}$	[ˊwildənis]	пустыня; защищенная местность
Y y		
yolk $_{n}$	[jəuk]	желток
Z z		
zone $_{n}$	[ˊzəun]	зона, пояс, полоса, район

Таблица неправильных глаголов

№ п/п	Present	Past	Past patriciple	Translation
1	be	was/were	been	быть, находиться
2	become	became	become	становиться
3	begin	began	begun	начинать
4	come	came	come	приходить
5	do	did	done	делать
6	drink	drank	drunk	пить
7	eat	ate	eaten	кушать, есть
8	feed	fed	fed	питать(ся), кормить(ся)
9	find	found	found	находить
10	get	got	got(gotten am e)	получать, доставать,
11	give	gave	given	давать
12	go	went	gone	идти, ходить, ездить
13	grow	grew	grown	расти
14	have	had	had	иметь
15	hear	heard	heard	слышать
16	know	knew	known	знать
17	lead	led	led	вести, приводить
18	leave	left	left	покидать, уезжать
19	lose	lost	lost	терять, лишаться, утрачивать
20	make	made	made	делать
21	mean	meant	meant	иметь в виду, означать
22	put	put	put	класть, положить
23	see	saw	seen	видеть
24	sell	sold	sold	продавать
25	send	sent	sent	отправлять
26	show	showed	shown	показывать, появляться
27	spend	spent	spent	тратить, расходовать, проводить (время)
28	split	split	split	расщепляться, раскалываться

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В ПОИСКАХ НАУЧНЫХ ОТКРЫТИЙ

Часть II

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